

# Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals: 2002

Issued December 2004

EC02-311-334515 (RV)

## 2002 Economic Census

*Manufacturing*

Industry Series



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U.S. Department of Commerce  
Economics and Statistics Administration  
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-- Not applicable for this report.

**Table 1. Historical Statistics for the Industry: 2002 and Earlier Years**

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry and year <sup>1</sup>	Com- panies <sup>2</sup>	All estab- lish- ments <sup>3</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expendi- tures (\$1,000)
			Number <sup>4</sup>	Payroll (\$1,000)	Number <sup>4</sup>	Hours (1,000)	Wages (\$1,000)				
334515, Instrument manufacturing for measuring and testing electricity and electrical signals.....2002..	728	791	56 643	3 280 940	19 264	38 302	804 637	6 053 870	3 721 565	9 977 754	'467 610
2001..	N	N	63 338	3 474 293	24 199	46 944	958 714	7 758 137	4 755 941	12 582 476	772 493
2000..	N	N	61 832	3 421 797	25 757	51 138	968 780	10 346 835	5 821 238	16 002 779	794 593
1999..	N	N	63 181	3 143 835	27 030	51 816	965 757	9 010 404	5 161 018	14 079 580	662 766
1998..	N	N	63 976	3 222 892	28 721	59 505	1 050 922	8 754 959	4 772 761	13 610 141	647 572
1997..	762	827	63 891	3 045 208	29 626	60 904	1 033 172	8 991 807	5 140 771	14 025 050	667 632

<sup>1</sup>Statistics presented for years ending in 2 and 7 are census data. Interim census years are derived in a representative sample of manufacturing establishments canvassed in the Annual Survey of Manufactures (ASM).

<sup>2</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>3</sup>Includes establishments with payroll at any time during the year.

<sup>4</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 2. Industry Statistics for Selected States: 2002**

[States that are a disclosure or with less than 100 employees are not shown. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographical definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E <sup>1</sup>	All establishments <sup>2</sup>		All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number <sup>3</sup>	Payroll (\$1,000)	Number <sup>3</sup>	Hours (1,000)	Wages (\$1,000)				
334515, Instrument manufacturing for measuring and testing electricity and electrical signals												
United States .....	1	791	294	56 643	3 280 940	19 264	38 302	804 637	6 053 870	3 721 565	9 977 754	'467 610
Arizona .....	—	24	7	672	27 565	239	483	7 671	57 195	26 551	83 453	'2 733
California .....	—	217	94	20 261	1 298 127	6 125	12 698	319 799	2 268 762	1 321 917	3 728 871	'149 669
Connecticut .....	1	8	4	324	20 133	135	283	4 943	13 290	20 813	38 339	'2 003
Florida .....	3	27	7	557	30 298	203	433	7 125	48 366	18 571	72 980	'1 225
Illinois .....	2	19	8	663	34 572	294	570	9 185	71 715	39 945	112 482	'2 522
Indiana .....	—	12	5	1 106	55 978	228	464	8 135	124 898	94 118	224 560	'4 143
Maryland .....	—	7	5	2 116	173 577	243	525	9 944	279 602	220 419	498 681	'15 188
Massachusetts .....	2	40	17	4 506	265 268	1 226	2 316	60 923	426 707	328 047	787 260	'36 548
Michigan .....	9	23	2	411	24 951	187	384	6 016	55 357	32 114	87 303	'1 772
Minnesota .....	4	18	8	795	46 221	365	693	15 447	74 488	33 022	112 364	'3 563
New Hampshire .....	1	17	7	872	40 827	503	957	19 050	91 730	66 623	157 747	'3 798
New Jersey .....	4	33	7	429	21 617	222	398	7 699	55 956	24 127	80 255	'1 337
New York .....	1	40	17	2 404	108 987	1 074	2 142	32 628	223 350	172 513	399 351	'9 609
North Carolina .....	—	10	6	868	39 185	583	1 151	18 214	81 948	81 443	164 517	'4 345
Ohio .....	—	38	17	1 852	87 508	758	1 426	27 828	149 652	122 374	275 101	'10 659
Oklahoma .....	2	9	3	305	11 806	175	329	5 684	27 900	14 054	38 865	'671
Oregon .....	—	24	11	3 921	207 502	1 020	1 573	28 464	495 606	300 019	815 788	'36 640
Pennsylvania .....	1	22	6	451	19 834	237	471	8 526	48 365	28 661	77 962	'1 088
Texas .....	3	55	17	1 812	82 002	821	1 457	25 474	169 772	139 030	306 076	'22 224
Utah .....	—	6	3	246	8 373	130	220	2 648	9 416	6 029	16 486	'292
Washington .....	—	17	10	2 792	154 378	1 111	2 322	36 959	396 302	207 553	602 080	'19 929
Wisconsin .....	4	17	4	297	16 381	123	210	4 066	41 134	22 572	64 176	'1 132

<sup>1</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1—10 to 19 percent; 2—20 to 29 percent; 3—30 to 39 percent; 4—40 to 49 percent; 5—50 to 59 percent; 6—60 to 69 percent; 7—70 to 79 percent; 8—80 to 89 percent; 9—90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

**Table 3. Detailed Statistics by Industry: 2002**

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
334515, Instrument manufacturing for measuring and testing electricity and electrical signals	
Companies <sup>1</sup> .....	728
All establishments <sup>2</sup> .....	791
Establishments with 1 to 19 employees .....	497
Establishments with 20 to 99 employees .....	197
Establishments with 100 employees or more .....	97
All employees <sup>3</sup> .....	56 643
Total compensation .....	4 112 292
Annual payroll .....	3 280 940
Total fringe benefits .....	831 352
Production workers, average for year .....	19 264
Production workers on March 12 .....	19 990
Production workers on May 12 .....	19 530
Production workers on August 12 .....	19 080
Production workers on November 12 .....	18 391
Production worker hours .....	38 302
Production worker wages .....	804 637
Total cost of materials .....	3 721 565
Materials, parts, containers, packaging, etc., used .....	3 396 962
Resales .....	203 026
Purchased fuels .....	4 960
Purchased electricity .....	54 017
Contract work .....	62 600
Quantity of electricity purchased for heat and power .....	708 831
Quantity of electricity generated less sold for heat and power .....	D
Total value of shipments .....	9 977 754
Primary products value of shipments .....	8 911 338
Secondary products value of shipments .....	459 634
Total miscellaneous receipts .....	606 782
Value of resales .....	330 666
Contract receipts .....	48 980
Other miscellaneous receipts .....	227 136
Primary products specialization ratio .....	95
Value of primary products shipments made in all industries .....	9 773 796
Value of primary products shipments made in this industry .....	8 911 338
Value of primary products shipments made in other industries .....	862 458
Coverage ratio .....	91
Value added .....	6 053 870
Total inventories, beginning of year .....	2 654 920
Finished goods inventories .....	630 328
Work-in-process inventories .....	636 970
Materials and supplies inventories .....	1 387 622
Total inventories, end of year .....	2 437 267
Finished goods inventories .....	519 812
Work-in-process inventories .....	545 167
Materials and supplies inventories .....	1 372 288
Gross value of depreciable assets (acquisition costs) at beginning of year .....	'4 792 809
Total capital expenditures (new and used) .....	'467 610
Buildings and other structures (new and used) .....	'145 905
Machinery and equipment (new and used) .....	'321 705
Automobiles, trucks, etc., for highway use .....	'6 279
Computers and peripheral data processing equipment .....	'30 365
All other expenditures for machinery and equipment .....	'284 013
Total retirements .....	'279 209
Gross value of depreciable assets at end of year .....	'4 981 210
Depreciation charges during year .....	'415 699
Total rental payments .....	161 341
Buildings and other structures .....	121 474
Machinery and equipment .....	39 867
Total other expenses <sup>4</sup> .....	1 184 691
Response coverage ratio <sup>5</sup> .....	67
Repair and maintenance services of buildings and/or machinery <sup>4</sup> .....	37 113
Communications services <sup>4</sup> .....	41 376
Legal services <sup>4</sup> .....	17 103
Accounting, auditing, and bookkeeping services <sup>4</sup> .....	10 036
Advertising and promotional services <sup>4</sup> .....	48 530
Expensed computer hardware and supplies and purchased computer services <sup>4</sup> .....	35 118
Refuse removal (including hazardous waste) services <sup>4</sup> .....	2 837
Management consulting and administrative services <sup>4</sup> .....	43 189
Taxes and license fees <sup>4</sup> .....	19 498
All other expenses <sup>4</sup> .....	929 891

<sup>1</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

<sup>4</sup>Based on Annual Survey of Manufactures (ASM) sample data.

<sup>5</sup>A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those Annual Survey of Manufactures (ASM) establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note 1: The amounts shown for other expenses reflect only those services that establishments purchase from other companies.

Note 2: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 4. Industry Statistics by Employment Size: 2002**

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Employment size class	E <sup>1</sup>	All establishments <sup>2</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number <sup>3</sup>	Payroll (\$1,000)	Number <sup>3</sup>	Hours (1,000)	Wages (\$1,000)				
334515, Instrument manufacturing for measuring and testing electricity and electrical signals											
All establishments .....	1	791	56 643	3 280 940	19 264	38 302	804 637	6 053 870	3 721 565	9 977 754	'467 610
Establishments with—											
1 to 4 employees .....	9	310	640	33 629	337	594	9 967	77 855	42 927	121 099	'2 494
5 to 9 employees .....	8	101	679	41 807	276	533	9 688	94 770	50 321	145 239	'2 868
10 to 19 employees .....	6	86	1 179	70 085	545	1 071	20 191	147 498	81 224	230 813	'4 574
20 to 49 employees .....	2	136	4 492	229 816	2 017	3 949	68 576	451 729	268 203	739 285	'17 214
50 to 99 employees .....	2	61	4 459	224 014	1 828	3 485	60 633	421 273	214 551	640 480	'18 477
100 to 249 employees .....	2	56	8 379	415 841	3 695	6 929	125 612	827 550	596 573	1 442 128	'35 489
250 to 499 employees .....	1	21	7 053	476 391	2 360	4 643	103 450	683 438	675 003	1 383 072	'100 649
500 to 999 employees .....	—	9	5 707	258 676	2 215	4 838	80 756	669 556	352 991	1 039 628	'106 473
1,000 to 2,499 employees .....	—	7	11 777	722 072	2 641	5 207	119 519	1 438 010	696 826	2 171 370	'151 003
2,500 employees or more .....	—	4	12 278	808 609	3 350	7 053	206 245	1 242 191	742 946	2 064 640	'28 369
Administrative records <sup>4</sup> .....	9	369	2 024	114 001	949	1 769	29 593	242 903	146 856	386 497	'9 118

<sup>1</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

<sup>4</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 5. Industry Statistics by Primary Product Class Specialization: 2002**

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry or product class code	Industry or primary product class	All establishments <sup>1</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number <sup>2</sup>	Payroll (\$1,000)	Number <sup>2</sup>	Hours (1,000)	Wages (\$1,000)				
334515	Instrument manufacturing for measuring and testing electricity and electrical signals.....	791	56 643	3 280 940	19 264	38 302	804 637	6 053 870	3 721 565	9 977 754	'467 610
3345151	Electrical integrating instruments . . .	23	2 904	126 637	1 734	3 563	55 674	329 855	240 586	554 273	'10 525
3345153	Test equipment for testing electrical, radio, and communication circuits, and motors (except portable instrument transformers) .....	233	47 256	2 822 240	14 614	29 316	656 293	5 048 754	3 096 031	8 356 303	'431 389
3345155	Other instruments to measure electricity .....	39	2 364	104 049	1 147	2 211	34 773	217 438	145 129	371 190	'9 588

<sup>1</sup>Includes establishments with payroll at any time during the year.

<sup>2</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 6a. Products Statistics: 2002 and 1997**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
334515	Instrument manufacturing for measuring and testing electricity and electrical signals .....	2002.. N	X	X	9 773 796
	..... 1997.. N		X	X	13 033 372
3345151	Electrical integrating instruments .....	2002.. N	X	X	623 524
	..... 1997.. N		X	X	484 671
33451511	Electrical integrating instruments .....	2002.. N	X	X	623 524
	..... 1997.. N		X	X	484 671
3345151100	Electrical integrating instruments <sup>1</sup> .....	2002.. 41	X	X	623 524
	..... 1997.. 36		X	X	484 671
3345153	Test equipment for testing electrical, radio, and communication circuits, and motors (except portable instrument transformers) .....	2002.. N	X	X	8 134 110
	..... 1997.. N		X	X	11 253 180
33451531	Test equipment for testing electrical, radio, and communication circuits, and motors (except portable instrument transformers) .....	2002.. N	X	X	8 134 110
	..... 1997.. N		X	X	11 253 180
3345153100	Test equipment for testing electrical, radio, and communication circuits, and motors (except portable instrument transformers) <sup>1</sup> .....	2002.. 254	X	X	8 134 110
	..... 1997.. 324		X	X	11 253 180
3345155	Other instruments to measure electricity .....	2002.. N	X	X	379 481
	..... 1997.. N		X	X	486 394
33451551	Other instruments to measure electricity .....	2002.. N	X	X	379 481
	..... 1997.. N		X	X	486 394
3345155100	Other instruments to measure electricity <sup>1</sup> .....	2002.. 59	X	X	379 481
	..... 1997.. 82		X	X	486 394
334515W	Instrument manufacturing for measuring and testing electricity and electrical signals, nsk, total .....	2002.. N	X	X	636 681
	..... 1997.. N		X	X	809 127
334515WY	Instrument manufacturing for measuring and testing electricity and electrical signals, nsk, total .....	2002.. N	X	X	636 681
	..... 1997.. N		X	X	809 127
334515WYWW	Instrument manufacturing for measuring and testing electricity and electrical signals, nsk, for nonadministrative-record establishments .....	2002.. N	X	X	346 313
	..... 1997.. N		X	X	617 807
334515WYWY	Instrument manufacturing for measuring and testing electricity and electrical signals, nsk, for administrative-record establishments .....	2002.. N	X	X	290 368
	..... 1997.. N		X	X	191 320

<sup>1</sup>For additional detail, see Current Industrial Report MA334B, Selected Instruments and Related Products.

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.



Table 6b. **Product Class Shipments for Selected States: 2002 and 1997**

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 2002. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographic definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)
3345151	Electrical integrating instruments	
	United States .....	2002 .. 623 524
		1997 .. 484 671
	California .....	2002 .. 23 616
		1997 .. 14 353
	Ohio .....	2002 .. 15 835
		1997 .. N
3345153	Test equipment for testing electrical, radio, and communication circuits, and motors (except portable instrument transformers)	
	United States .....	2002 .. 8 134 110
		1997 .. 11 253 180
	Arizona .....	2002 .. 229 986
		1997 .. 210 283
	California .....	2002 .. 3 237 720
		1997 .. 5 106 478
	Connecticut .....	2002 .. 65 682
		1997 .. 37 458
	Florida .....	2002 .. 329 159
		1997 .. 60 776
	Illinois .....	2002 .. 20 652
		1997 .. 195 952
	Massachusetts .....	2002 .. 692 736
		1997 .. 1 144 491
	Minnesota .....	2002 .. 105 518
		1997 .. 130 036
	New Hampshire .....	2002 .. 96 230
		1997 .. 43 505
	New Jersey .....	2002 .. 105 740
		1997 .. 225 007
	New York .....	2002 .. 299 287
		1997 .. 337 817
	North Carolina .....	2002 .. 23 290
		1997 .. 74 539
	Ohio .....	2002 .. 175 716
		1997 .. 155 041
	Oregon .....	2002 .. 553 079
		1997 .. 1 164 575
	Pennsylvania .....	2002 .. 18 817
		1997 .. 62 961
	Texas .....	2002 .. 187 256
		1997 .. 227 701
	Virginia .....	2002 .. 15 471
		1997 .. 18 046
	Washington .....	2002 .. 448 447
		1997 .. 608 923
3345155	Other instruments to measure electricity	
	United States .....	2002 .. 379 481
		1997 .. 486 394
	California .....	2002 .. 50 919
		1997 .. 97 278
	Florida .....	2002 .. 8 814
		1997 .. N
	Illinois .....	2002 .. 50 494
		1997 .. 22 639
	New Hampshire .....	2002 .. 27 217
		1997 .. 54 866
	New York .....	2002 .. 22 774
		1997 .. 27 113
	Ohio .....	2002 .. 24 649
		1997 .. 39 260
	Texas .....	2002 .. 18 926
		1997 .. 11 329

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

**Table 7. Materials Consumed by Kind: 2002 and 1997**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Material code	Material consumed	Quantity	Delivered cost (\$1,000)
334515	Instrument manufacturing for measuring and testing electricity and electrical signals		
00900001	Total materials .....2002..	X	3 396 962
	.....1997..	X	4 591 610
33441200	Printed circuit boards (without inserted components) for electronic circuitry .....2002..	X	199 025
	.....1997..	X	223 187
001900C4	Printed circuit assemblies, loaded boards, and modules (printed circuit boards with inserted electronic components) .....2002..	X	302 235
	.....1997..	X	310 399
33441300	Semiconductors (including transistors, diodes, rectifiers, and integrated circuits), for electronic circuitry .....2002..	X	167 865
	.....1997..	X	485 218
33441400	Capacitors for electronic circuitry .....2002..	X	25 625
	.....1997..	X	39 103
33441500	Resistors for electronic circuitry .....2002..	X	35 140
	.....1997..	X	33 332
001900D3	All other miscellaneous components and accessories, for electronic circuitry (excluding tubes) .....2002..	X	228 483
	.....1997..	X	501 753
33593101	Current-carrying wiring devices .....2002..	X	21 305
	.....1997..	X	85 973
001900B1	Electrical transmission, distribution, and control equipment .....2002..	X	152 178
	.....1997..	X	138 757
33411001	Electronic computer equipment .....2002..	X	21 426
	.....1997..	X	N
33451501	Electrical instrument mechanisms and meter movements (including instrument relays) .....2002..	X	23 043
	.....1997..	X	69 960
33451503	All other miscellaneous electrical measuring instruments and parts .....2002..	X	443 266
	.....1997..	X	415 717
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. ....2002..	X	7 661
	.....1997..	X	4 719
32610007	Fabricated plastics products (excluding gaskets, hoses, and belting) .....2002..	X	47 676
	.....1997..	X	43 656
332000A9	Sheet metal products (excluding stampings) .....2002..	X	27 450
	.....1997..	X	116 518
332000AC	Metal stampings .....2002..	X	21 876
	.....1997..	X	28 405
332000AE	Other fabricated metal products (excluding forgings, metal stampings, and sheet metal products) .....2002..	X	23 091
	.....1997..	X	68 019
33100035	Castings, rough and semifinished .....2002..	X	9 935
	.....1997..	X	15 860
33100033	Metal shapes and forms (excluding castings, forgings, and fabricated metal products) .....2002..	X	5 990
	.....1997..	X	15 818
33120001	Steel shapes and forms (excluding castings, forgings, and fabricated metal products) .....2002..	X	8 169
	.....1997..	X	N
33100038	Aluminum and aluminum-base alloy shapes and forms (excluding castings, forgings, and fabricated metal products) .....2002..	X	3 628
	.....1997..	X	N
33100076	Other nonferrous shapes and forms (excluding castings, forgings, and fabricated metal products) .....2002..	X	2 123
	.....1997..	X	N
33142111	Copper and copper-base alloy shapes and forms (excluding castings, forgings, and fabricated metal products) .....2002..	X	2 514
	.....1997..	X	N
32720003	Glass and glass products (excluding windows and mirrors) .....2002..	X	5 863
	.....1997..	X	11 725
331000A7	Insulated wire and cable (including magnet wire) .....2002..	X	14 378
	.....1997..	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products .....2002..	X	9 040
	.....1997..	X	N
33331401	Optical instruments and lenses (excluding sighting, tracking, and fire control) .....2002..	X	7 670
	.....1997..	X	N
33422001	Electronic communication equipment .....2002..	X	19 423
	.....1997..	X	N
33531211	Fractional horsepower electric motors (less than 1 hp) .....2002..	X	2 836
	.....1997..	X	N
33441900	Liquid crystal display screens (LCD), including LED .....2002..	X	13 161
	.....1997..	X	N
32220017	Paper and paperboard containers (including shipping sacks and other paper packaging supplies) .....2002..	X	6 309
	.....1997..	X	N
00970099	All other materials and components, parts, containers, and supplies .....2002..	X	636 839
	.....1997..	X	949 423
00971000	Materials, ingredients, containers, and supplies, nsk .....2002..	X	901 739
	.....1997..	X	1 034 068

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.